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## FRUIT AND VEGETABLE PRODUCTS LABORATORY

College Station, Box 8, Pullman, Washington  
(Cooperative with Washington Agricultural Experiment Station)

Bureau of Agricultural and Industrial Chemistry  
Agricultural Research Administration  
U. S. Department of Agriculture

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Of the journal articles only a few (particularly those published recently) are available in reprint form. The circulars are available on request.

## 1942

NEW--NECTAR MADE FROM FRESH PRUNES. C. W. Eddy and M. K. Veldhuis. *Food Indus.* 14(3):46-47, March, 1942. Fresh Italian prunes have been used for prune nectar, which is rich in color and of pleasing taste and aroma. The product offers an outlet for culls.

## 1943

EFFECT OF FILTRATION ON APPEARANCE, VISCOSITY, AND ALCOHOL-INSOLUBLE FRACTIONS OF APPLE JUICE. A. M. Neubert. *Food Res.* 8(6):477-88, Nov.--Dec., 1943. Raw unheated juice, flash-heated and cooled juice, and juices clarified by enzyme treatment and by gelatin-tannin fining were investigated. Seven grades of Seitz filter sheets and Whatman No. 2 filter paper were used. Filtration was compared with centrifuging.

## 1944

EFFECT OF CONCENTRATION ON COMPOSITION AND PROPERTIES OF REDILUTED APPLE JUICE. A. M. Neubert. *Fruit Prod. Jour. and Amer. Food Mfr.* 23(6):166-69, Feb., 1944. With certain precautions apple juice can be concentrated, by vacuum distillation or by freezing, and rediluted without serious effect. Ordinary vacuum distillation results in loss of aroma, but methods of recovering these volatile fractions have been developed which reduce this loss. Changes in viscosity, alcohol precipitate, and pectic acid were considered of no value in detecting products prepared from concentrates. Other properties commonly determined in ascertaining adulteration were not noticeably altered.

FREESTONE PEACH VARIETIES FOR CANNING IN WASHINGTON. M. K. Veldhuis and A. M. Neubert. *Fruit Prod. Jour. and Amer. Food Mfr.* 23(8):229-33, Apr., 1944. Of 46 varieties reported the Elberta, Gold Medal, and Early Elberta are most desirable for canning. They do not meet all requirements, because they occasionally exhibit semi-cling pits. Other varieties suggested, to permit a lengthening of canning season even though they require special attention in harvesting to assure satisfactory texture, are Shalil, Golden Jubilee, July Elberta, Valiant, Mowery, South Haven, and Hale Haven.

EFFECT OF STORAGE ON CANNING QUALITY OF ELBERTA PEACHES. M. K. Veldhuis and A. M. Neubert. *Fruit Prod. Jour. and Amer. Food Mfr.* 23(9):276-281, May 1944. Studies on storage of Elberta peaches at 31°, 37°, and 45°F. show that storage did not improve canning qualities but under proper conditions fruit could be held up to 3 or 4 weeks. Storage temperature should be as near 31°F. as possible and maturity within 5 days of full canning ripeness. If fruit is not at this maturity when received, it appears desirable to allow it to ripen before storage.

CLEANING VINED CANNING PEAS BY FROTH-FLOTATION REMOVAL OF NIGHTSHADE. M. K. Veldhuis and A. M. Neubert. *West. Canner and Packer* 36(6):18-19, May, 1944. A preliminary report on a new process for removing nightshade berries, tarweed seed, and other foreign material from vined green peas. Process involves froth flotation and use of small air bubbles to float away undesirable material.

EFFECT OF HARVEST MATURITY ON CANNING QUALITY OF WESTERN-GROWN ELBERTA PEACHES. A. M. Neubert, M. K. Veldhuis, and W. J. Clore. *Fruit Prod. Jour. and Amer. Food Mfr.* 23(10):292-97, June, 1944. Quality of canned soft-ripe freestone peaches is markedly affected by maturity of fruit when harvested. Data on size, color, firmness, time required to ripen, wilting losses, yield, and quality of canned fruit are presented. The most satisfactory maturity was found when fruit was about 75 percent yellow and gave an average pressure test on peeled fruit of approximately 4 pounds with a 7/16-inch plunger to 9 pounds with a 5/16-inch plunger. Such fruit required 3 to 7 days to ripen for canning. Color-picking, involving 2 or more harvests, would appear advantageous.

CLOUDING AND SEDIMENTATION IN CLARIFIED APPLE JUICE. A. M. Neubert and M. K. Veldhuis. *Fruit. Prod. Jour. and Amer. Food Mfr.* 23(11):324-28, July, 1944. No dependable method for controlling sedimentation was found and its formation appeared general during storage of pasteurized, clarified juice regardless of variety or maturity of apples or methods of clarification. Juice clarified by pectin-decomposing enzymes in general deposited a greater amount of sediment after shorter storage than did other methods. Sediment obtained from apple juice was tentatively identified as photophene.

RESEARCH SHOWS EFFECTS OF MATURITY AND STORAGE ON CANNED PACIFIC NW FREE-STONES. A. M. Neubert and M. K. Veldhuis. *West. Canner and Packer* 36(9):23, Aug., 1944. Investigations were made on suitability of varieties for canning and effects of harvest maturity, ripening procedure, and storage on canning quality of fruit. A summary of results of these investigations (reported in abstracts of other articles) are presented.

RIPENING WASHINGTON-GROWN ELBERTA PEACHES FOR CANNING. A. M. Neubert and M. K. Veldhuis. *Fruit Prod. Jour. and Amer. Food Mfr.* 23(12):357-60, Aug. 1944. Rate of ripening after harvest was accelerated by increasing temperature. Color of canned peaches became progressively deeper yellow as ripening temperature and humidity increased, but high temperatures, particularly under conditions of high humidity, should be avoided if best flavor and peeling characteristics are obtained. Most satisfactory temperature was 75°F.

VARIATIONS IN ACIDITY OF CONCORD GRAPE JUICE. D. R. McCormick, M. K. Veldhuis, and J. L. St. John, *Fruit Prod. Jour. and Amer. Food Mfr.* 24(4):101-02, Dec., 1944. Main purpose was to obtain information on variations of malic and free tartaric acids in juices obtained from several principal producing sections. Whereas cream of tartar content can be controlled, malic and free tartaric acids can not. Free tartaric acid varied from none to 0.26 gram per 100 ml. and malic acid from 0.22 to 0.44 per 100 ml.

#### 1945

CLEANING VINED CANNING PEAS BY FROTH FLOTATION. A. M. Neubert and M. K. Veldhuis. *Food Indus.* 17(5):494-97, May, 1945. Principles of the process might be applied in other fields. It involves use of an oil-in-water emulsion into which air is incorporated as small bubbles. A foaming agent is used to maintain stability of foam and to aid in emulsifying oil. Density of mixture in separation unit varies with amount of separation of foam.

#### 1946

FACTORS INFLUENCING COLOR OF CANNED FREESTONE PEACHES. A. M. Neubert and G. H. Carter. *West. Canner and Packer* 38(11):56-59, Oct., 1946. Discoloration from oxidation after peeling was effectively retarded by increasing steaming time to 90 seconds. Similar results were obtained by immersing peeled fruit for one minute in either 2-percent citric acid, 2-percent sodium chloride, or 0.5-percent solution of hydrochloric acid. Discoloration already present was reduced in canned product by decreasing oxygen in container and also by increasing time of steam exhaust. Value of extending steam exhaust time, consistent with practical can vacuum, was demonstrated as means of removing chalky areas in flesh. Sealing cans with minimum entrapped atmospheric oxygen proved desirable in preventing darkening, obtaining a clearer sirup, and hastening disappearance of red color in sirup.

#### 1947

HARVESTING FREESTONE PEACHES FOR PROCESSING. A. M. Neubert, C. L. Bedford, J. H. Schultz, and G. H. Carter. *Wash. State Hort. Assoc. Proc.* 43:187-91, 1947. Conclusions are based on 2 years's work with Elberta and J. H. Hale peaches, in which general objective was to find best picking time for optimum quality in commercially canned or frozen product. Data were obtained on split pits, ground and flesh color, percentage of surface blushed, pressure tests, pit browning, total and soluble solids, total sugars, total acid and pH, tannin, ascorbic acid, and carotene and total carotenoids. Pit browning was found to be a consistent and specific indication of maturity; other factors varied. Two pickings are recommended.

USING FROTH FLOTATION TO CLEAN VINED CANNING PEAS. *Food Indus.* 19(6):769-72, June, 1947. Automatic regulation of flotation separation is possible with new device that adds wetting agent at the proper rate. Making, setting, and servicing the regulator are explained.

1948  
YIELD AND PROCESSING QUALITY OF SWEET CORN VARIETIES GROWN AT LEWISTON, IDAHO. J. E. Kraus, A. M. Neubert, and G. H. Carter. *Food Packer* 29(5): 65-66, Apr., 1948. Seneca Golden was found suitable for early-season commercial pack. Seneca Chief was good in quality and yield and matures a few days earlier than Golden Cross Bantam. Three strains of Golden Cross Bantam were of high quality but differed somewhat in tenderness and color. Of later varieties, Golden Hybrid 2439 and Tendermost showed most promise, but neither was as good in quality as Golden Cross Bantam (C). Tests for maturity are discussed.

PROCESSING WASHINGTON-GROWN FREESTONE PEACHES. A. M. Neubert, J. H. Schultz, C. L. Bedford, and G. H. Carter. *Wash. Agr. Expt. Sta. Circ.* 63. 38 pages, July 1948. Reviews the technology of freestone peach canning and freezing in Washington, including results of recent investigations. Part I summarizes information on suitable varieties and recommended methods for harvesting, ripening, storage, and processing--based on commercial experience and experimental studies. Part II presents data and facts from recent investigations on relationship of practices to quality and nutritive values of products.

MECHANICAL GRADING STUDIES WITH FREESTONE PEACHES FOR CANNING. A. M. Neubert, E. Smith, and T. R. Wright. *West. Canner and Packer* 40(9):44-47, Aug., 1948. A mechanical grader operating on sizes was not sufficiently accurate to permit halves to be canned from one size grade. A weight-type grader is capable of more accuracy but a commercial unit would probably be large and complicated. Bruising and possibility of water dump with added disinfectant are discussed. Data on blemishes resulting from grading and on three disinfectants are included.

CANNING STUDIES WITH WASHINGTON-GROWN APRICOTS. A. M. Neubert, J. H. Schultz, and G. H. Carter. *Wash. State Hort. Assoc. Proc.* 44:187-96. 1948. Also in *West. Canner and Packer* 41(3):24-25, March, 1949. Of 17 varieties grown under irrigation in Central Washington, Blenheim, Tilton, and Royal were considered best. Studies on ripening of Wenatchee Moorpark, the leading commercial variety, showed that ripening was most rapid and deepest orange color was developed at 75°F., with gaseous emanations confined about the fruit. Nectar of pleasing flavor, bright deep orange color, and desirably viscous body, prepared in good yield from Wenatchee Moorpark, offers commercial promise.

1949  
THE FROTH-FLOTATION PROCESS FOR CLEANING VINED GREEN PEAS. *Bureau of Agricultural and Industrial Chemistry, U. S. Dept. Agr.* (mimeo. circular) AIC-226, Apr., 1949. Equipment, installation, operation, and operation difficulties and their correction are discussed. Three drawings, of assembly, details, and schematic flow diagram and separation regulator are included.